FIFTH WHEEL HITCH MOUNTING SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. application Ser. No. 15/356,943, titled "Fifth Wheel Hitch Mounting System," filed on Nov. 21, 2016, which is a continuation of U.S. application Ser. No. 14/919,260, titled "Fifth Wheel Hitch Mounting System," filed on Oct. 21, 2015, which claims the benefit of U.S. Provisional Application No. 62/066,592 titled "Fifth Wheel Hitch Mounting System," filed on Oct. 21, 2014, all of which are incorporated herein by reference in their entirety.

FIELD OF INVENTION

[0002] The present invention is generally related to a towing apparatus and, more particularly, to a quick-connect fifth wheel hitch and self-adjusting mounting system for an under bed hitch mounting system.

BACKGROUND

[0003] Many vehicles are designed to transport freight, goods, merchandise, personal property, and other such cargo. An operator often utilizes a hitch assembly to connect a towed vehicle to a towing vehicle to increase the amount of cargo the towing vehicle may be able to transport. There are many different types of hitch assemblies that may be attached to the towing vehicle in a variety of ways. For example, rear mounted, front mounted, fifth wheel, and gooseneck hitches are common types of hitches utilized with towing vehicles.

[0004] Traditional fifth wheel hitches include a head assembly for receiving a king pin on a towed vehicle, a base having a plurality of legs, and one or more mounting transverse members. In some systems, the legs of the fifth wheel hitch are designed to be secured to mounting transverse members that are attached above the bed or on the bed of the towing vehicle. In other systems, the legs may be fixed directly to the frame of a vehicle underneath the load bed.

[0005] In those fifth wheel hitches utilizing the mounting transverse members, corresponding openings may be cut in the load bed and aligned with the apertures in the mounting transverse members. An attachment device may be connected to apertures in the mounting transverse members through the openings in the load bed of the towing vehicle, thereby securing the fifth wheel hitch to the frame of the towing vehicle. When the fifth wheel hitch is not in use, the attachment device may be disconnected from the apertures in the transverse members and load bed and the fifth hitch may be removed from the load bed of the towing vehicle. Caps may be placed over the apertures to allow the load bed of the towing vehicle to be used for other purposes.

[0006] Towing vehicles are generally arranged to accommodate a fifth wheel hitch that can be attached and disconnected using tools. It, however, is often desirable to utilize a fifth wheel hitch that can be connected and disconnected without use of tools. These prior art fifth wheel hitches, however, often require significant space to accommodate the connection/disconnection systems of the fifth wheel hitch. Towing vehicles often have limited space in the load bed, e.g., the wheel wells and cab may limit the amount of space available to operate such connection/disconnection systems. Therefore, there is a need for a fifth wheel hitch mounting system that is able to fit within a load bed of a towing vehicle and be connected/disconnected without use of tools. There is still further a need for a fifth wheel hitch mounting system that utilizes a connection/disconnection system that is operable within the confines of the load bed of the towing vehicle.

[0007] Additionally, many of the under bed hitch mounting systems are pre-installed in towing vehicles. Tolerance stacks may occur during such installation. These tolerance stack ups may make it difficult for a fifth wheel hitch mounting system to operatively fit on such under bed hitch mounting systems. For example, each of the attachment locations may not be on the same plane, which may result in the fifth wheel hitch being unbalanced. Therefore, there is a need for a fifth wheel hitch mounting system that may account for these tolerance stack up of under bed hitch mounting systems and allows operative attachment to the towing vehicle.

[0008] Moreover, there is a desire to have a fifth wheel hitch mounting system capable of operatively handling larger loads. There is an increased demand for towing larger items and as such there is a corresponding need for a fifth wheel hitch mounting system capable of handling these larger loads.

SUMMARY

[0009] A hitch mount configured to be selectively attached to a vehicle, the vehicle having an under bed hitch mounting system is shown and described. This hitch mount may include: at least one transverse member; at least one longitudinal member attached with the at least one transverse member, the at least one longitudinal member including first and second apertures, the first and second apertures of different size; first and second fastening devices configured to selectively engage the under bed hitch mounting system and the first and second apertures, respectively; first and second biasing members operatively engaged with the first and second fastening devices, the biasing members applying a load against the under bed hitch mounting system; and/or first and second handles pivotally attached with the first and second fastening devices and operable to rotate a portion of the first and second fastening devices, the handles having a camming surface configured to engage the first and second biasing members. Further embodiments may include any one or more of the following: wherein the first aperture is positioned fore on the vehicle and is generally a round shape, and the second aperture is positioned aft on the vehicle and is generally a round shape; further comprising a second longitudinal member attached with the at least one transverse member, the second longitudinal member including third and fourth apertures, the third and fourth apertures of different size from each other; wherein the second and fourth apertures are of generally the same shape and size; wherein one of the first and third apertures is a laterally extending slot; wherein the fastening devices each include a bushing and the bushing resides in the first and second apertures; wherein the fastening devices cooperate with the biasing members to enable independent vertical adjustment of the hitch mount; wherein the transverse member includes a pair of mounting members, each mounting member comprising a plurality of attachment points integrated on opposing ends of the transverse member; and/or having at least two transverse members and at least eight attachment points.